



What has occurred?

The PITSF has been made aware of a compartment overfill and subsequent spill incident, that recently occurred during a fuel loading operation at a NZ Terminal facility.

In this case it has been identified that the Overfill Protection System on the tanker unit (that is designed to prevent an overfill-spill event from occurring) has failed to work as expected (i.e. the system did not stop the product flow, when the probe was “wet”). Subsequently the product has continued to flow into the compartment, to a point where flammable (petrol) product has overfilled the compartment and then spilled/sprayed out of the vents. This initiated an immediate emergency stop activation by the driver, followed by activation of terminal emergency response procedures, cleanup and an investigation into what went wrong.

Initial investigation findings:

What has been identified in the investigation, was that the overfill protection system on the tanker did not work due to the presence of a Printed Circuit Board “PCB” (ref picture 2), that essentially rendered the overfill probes inoperable, due to some of the pins being bridged out by the PCB. **This PCB is only used on Civacon branded plug Model Number 4433-4433 which is the American Civacon Socket with housing, along with the 4133-4133 which is the American faceplate replacement kit without housing.**

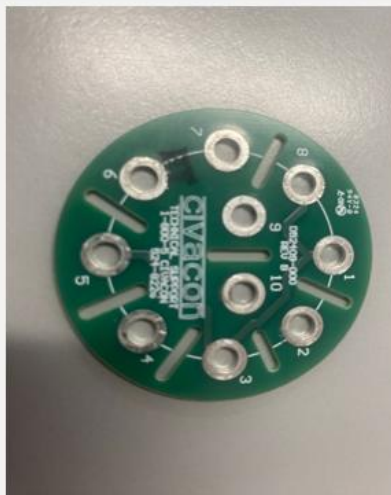
The Civacon plug installation manual indicates that a PCB, can be used in the place of jumper wires that might need to be installed in certain applications, but a PCB is “optional” and its use is to be determined based on the requirements of the application (which is different across various countries). It is important to note that for our New Zealand Terminal applications **this PCB should not be used.**

Key points:

- PCBs should NOT be used on fuel tankers operating in NZ, as they can impact the operation of the overfill protection system.
- **PCBs potentially might not have been removed as per manufacturer’s instructions during installation of the Civacon plug model “4433”, however these are sold in very low numbers in NZ (imported from 2021 onwards)**
- PCBs are not visible from the front of the plug i.e. they are in the back of the plug, contacting the plug terminals (refer pic 3), **only “green face” overfill sockets like Pic 1 need to be identified and checked.**
- With a PCB installed, the standard “Dry” testing method (using a testing unit), unfortunately gives a “false positive” test result.
- **We have been advised that Civacon European Sockets (with “black face”) are not an issue.**



**Pic1 – Civacon branded
“green face” plug on fuel tanker**



**Pic2 – Printed Circuit
Board “PCB”**



**Pic3 – PCB inside the
Civacon plug**

PITSF Recommendations & next Steps:

1. PITSF recommends that any fuel tankers that have Civacon **Model #4433-43433/4133-4133** plugs (**with green face**) installed, are immediately checked to ensure that these plugs do not have PCBs installed in them, and if found, these PCBs should be removed (ensuring the plugs are wired in accordance with the requirements for PITSF Industry Wiring “Setup 1 – Ground Bolt Verification System”)
2. PITSF also recommends both a “wet” & “dry” test (see below) is completed by SLP workshops to confirm full operation of the overfill system, even if only the plug junction box is opened to check for a PCB, as doing both tests also helps to eliminate the potential for pinched wires which could render the system non-operational.

Wet Test::

- **Immersion:** Place a container of a non-flammable liquid (e.g. water) under the overfill sensor.
- **Observation:** A technician observes the tester’s display to ensure it indicates a “non-permissive” or “wet” status, signifying the overfill condition is detected.
- **Interlock Check:** The test may also include verifying that any interlock mechanisms, such as a vapor vent/overfill interlock air pressure switch (where fitted) are also functioning correctly, preventing loading until the system is safe.

Dry Test: is the standard SLP test i.e. using an approved “Overfill system tester” unit to perform system function & diagnostic tests for different types of sensor probes (e.g., optical, thermistor, capacitive).

If you have any further questions, queries, concerns, or feedback please contact your companies PITSF representative or email info@transporting.nz